THE AMENDMENTS

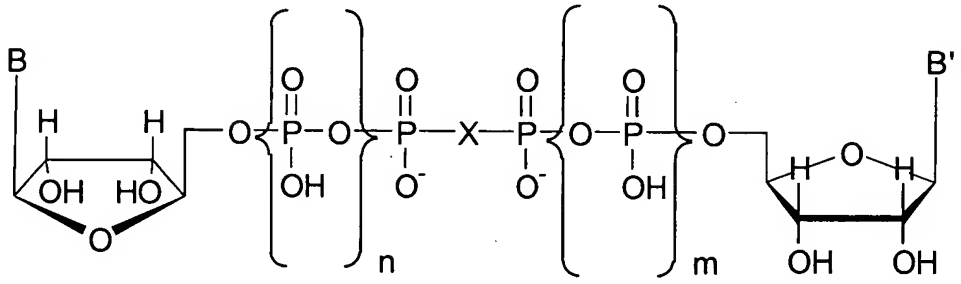
In the Claims

1. (Currently Amended) A method of stimulating tear secretion and mucin production in eyes comprising the step of administering to the eyes an effective amount of a preparation comprising a dinucleotide as depicted in Formulae II, II(a) and II(b), or ~~their~~ a pharmaceutically acceptable ~~salts~~ salt thereof; and

a physiologically compatible vehicle selected from the group consisting of aqueous electrolyte solutions, polyethers, polyvinyls, polymers of acrylic acid, lanolin, and glucosaminoglycans;

whereby said preparation is effective in promoting tear secretion and mucin production in the eyes in a subject in need of such treatment:

FORMULA II



wherein:

X is oxygen, imido, methylene or difluoromethylene;

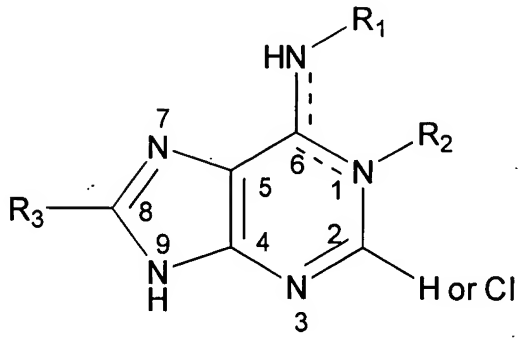
n = 0 or 1;

m = 0 or 1;

n + m = 0, 1 or 2; and

B and B' are each independently a purine residue, as in Formula IIa, or a pyrimidine residue, as in Formula IIb, linked through the 9- or 1-position, respectively:

FORMULA IIa



wherein:

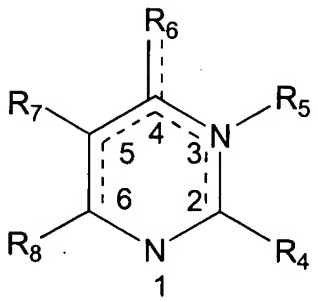
R_3 is NHR_1;

R_1 of the 6- or 8-HNR_1 groups is ~~chosen~~ selected from the group consisting of hydrogen, arylalkyl (C_{1-6}) groups; and alkyl groups with functional groups selected from the group consisting of ([6-aminohexyl]carbamoylmethyl)-, ~~ω-acylated-amino(hydroxy, thiol or carboxy)alkyl(C_{2-10})-~~ ω-acylated-(amino, hydroxy, thiol or carboxy)alkyl(C_{2-10})- and ~~ω-acylated-amino (hydroxy, thiol or carboxy)~~ ω-acylated-(amino, hydroxy, thiol or carboxy) derivatives where the acyl group is ~~chosen~~ selected from the group consisting of acetyl, trifluoroacetyl, benzoyl, and substituted-benzoyl;

R_2 is O or absent; or

R_1 and R_2 taken together form a substituted 5-membered fused imidazole ring;

FORMULA IIb



wherein:

R_4 is hydroxy, mercapto, amino, cyano, aralkoxy, C_{1-6} alkoxy, C_{1-6} alkylamino or dialkylamino, with the alkyl groups optionally linked to form a heterocycle;

R_5 is hydrogen, acyl, C_{1-6} alkyl, aroyl, C_{1-5} alkanoyl, benzoyl, or sulphonate;

R_6 is hydroxy, mercapto, alkoxy, aralkoxy, C_{1-6}-alkylthio, C_{1-5} disubstituted amino, triazolyl, alkylamino or dialkylamino, where the alkyl groups are optionally linked to form a heterocycle or linked to N^3 to form an optionally substituted ring;

R_7 is hydrogen, hydroxy, cyano, nitro, alkenyl with the alkenyl moiety optionally linked through oxygen to form a ring optionally substituted on the carbon adjacent to the oxygen with alkyl or aryl groups, halogen, alkyl, substituted alkyl, perhalomethyl, C_{2-6} alkyl, C_{2-3} alkenyl, or substituted ethenyl, C_{2-3} alkynyl or substituted alkynyl;

or together $R_6 - R_7$ form a 5 or 6-membered saturated or unsaturated ring bonded through N or O at R_6, such a ring optionally contains substituents that themselves contain functionalities; and

R_8 is hydrogen, alkoxy, arylalkoxy, alkylthio, arylalkylthio, carboxamidomethyl, carboxymethyl, methoxy, methylthio, phenoxy or phenylthio.

2. (Previously Presented) The method according to Claim 1, wherein said administration involves topical administration of said compound via a carrier vehicle selected from a group consisting of drops of liquid, liquid wash, gels, ointments, sprays and liposomes.

3. (Previously Presented) The method according to Claim 2, wherein said topical administration comprises infusion of said compound to said eyes via a device selected from the group consisting of a pump-catheter system, a continuous or selective release device, and a contact lens.

4. (Currently Amended) The method according to Claim 1, wherein said administration involves systemically administering a ~~liquid/liquid~~ liquid or liquid suspension of said compound via nose drops or nasal spray or nebulized liquid to oral or nasopharyngeal airways of said subject, such that a therapeutically effective amount of said compound contacts the eyes of said subject via systemic absorption and circulation.

5. (Previously Presented) The method according to Claim 4, wherein said administration involves systemically administering an oral form of said compound, such that a therapeutically effective amount of said compound contacts the eyes of said subject via systemic absorption and circulation.

6. (Previously Presented) The method according to Claim 1, wherein said administration is accomplished by administering an injectable form of said compound, such that a therapeutically effective amount of said compound contacts the lacrimal tissues of said subject via systemic absorption and circulation.

7. (Previously Presented) The method according to Claim 1, wherein said administration is accomplished by administering a suppository form of said compound, such that a therapeutically effective amount of said compound contacts the lacrimal tissues of said subject via systemic absorption and circulation.

8. (Previously Presented) The method according to Claim 1, wherein said administration is accomplished by administering an intra-operative instillation of a gel, cream, powder, foam, crystals, liposomes, spray or liquid suspension form of said compound.

9. (Previously Presented) The method according to Claim 1, wherein said compound is administered in an amount sufficient to achieve concentrations thereof on the ocular surfaces of said subject of from about 10^{-7} to about 10^{-1} moles/liter.

10. (Currently Amended) A method of stimulating tear secretion and mucin production in eyes comprising the step of administering to the eyes an effective amount of P^1, P^4-di(uridine-5')-tetraphosphate or a pharmaceutically acceptable salt thereof to promote tear secretion and mucin production in the eyes.

11. (Previously Presented) A method of treating dry eye diseases comprising the step of administering to the eyes an effective amount of P^1, P^4-di(uridine-5')-tetraphosphate or a pharmaceutically acceptable salt thereof to promote tear secretion and mucin production in the eyes.

12. (Cancelled).